

SEQUENCE LISTING

<110> CHUGAI SEIYAKU KABUSHIKI KAISHA

<120> Anti-PCI neutralizing antibodies

<130> 14875-147US1

<150> PCT/JP2004/000429

<151> 2004-01-20

<150> JP 2003-011529

<151> 2003-01-20

<160> 60

<170> PatentIn version 3.1

<210> 1

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<212> DNA

<213> Artificial Sequence

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<213> Artificial Sequence

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<210> 4

<211> 1237

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<221> CDS

<222> (11)..(1228)

<400> 4

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cct cag ggg gcc tcc ctt cac cgc cac cac ccc cgg gag atg aag aag      97
Pro Gln Gly Ala Ser Leu His Arg His His Pro Arg Glu Met Lys Lys
      15              20              25

aga gtc gag gac ctc cat gta ggt gcc acg gtg gcc ccc agc agc aga     145
Arg Val Glu Asp Leu His Val Gly Ala Thr Val Ala Pro Ser Ser Arg
      30              35              40              45

agg gac ttt acc ttc gac ctc tac agg gtc ttg gct tcc gct gcc ccc     193
Arg Asp Phe Thr Phe Asp Leu Tyr Arg Val Leu Ala Ser Ala Ala Pro
            50              55              60

agc cag aat atc ttc ttc tcc cct gtg agc atc tcc atg agc ctg gcc     241
Ser Gln Asn Ile Phe Phe Ser Pro Val Ser Ile Ser Met Ser Leu Ala
            65              70              75

atg ctc tcc ctg ggg gct ggg tcc agc aca aag atg cag atc ctg gag     289
Met Leu Ser Leu Gly Ala Gly Ser Ser Thr Lys Met Gln Ile Leu Glu
            80              85              90

ggc ctg ggc ctc aac ctc cag aaa agc tca gag gag gag ctg cac aga     337
Gly Leu Gly Leu Asn Leu Gln Lys Ser Ser Glu Glu Glu Leu His Arg
            95              100             105

ggc ttt cag cag ctc ctt cag gaa ctc aac cag ccc aga gat ggc ttc     385
Gly Phe Gln Gln Leu Leu Gln Glu Leu Asn Gln Pro Arg Asp Gly Phe
      110              115             120             125

cag ctg agc ctc ggc aat gcc ctt ttc acc gac ctg gtg gta gac ctg     433
Gln Leu Ser Leu Gly Asn Ala Leu Phe Thr Asp Leu Val Val Asp Leu
            130             135             140

cag gac acc ttc gta agt gcc atg aag acg ctg tac ctg gca gac act     481
Gln Asp Thr Phe Val Ser Ala Met Lys Thr Leu Tyr Leu Ala Asp Thr
            145             150             155

ttc ccc acc aac ttt agg gac tct gca ggg gcc atg aag cag atc aat     529
Phe Pro Thr Asn Phe Arg Asp Ser Ala Gly Ala Met Lys Gln Ile Asn
            160             165             170

gat tat gtg gca aag caa acg aag ggc aag att gtg gac ttg ctt aag     577
Asp Tyr Val Ala Lys Gln Thr Lys Gly Lys Ile Val Asp Leu Leu Lys
            175             180             185

aac ctc gat agc aat gcg gtc gtg atc atg gtg aat tac atc ttc ttt     625
Asn Leu Asp Ser Asn Ala Val Val Ile Met Val Asn Tyr Ile Phe Phe

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| 190 | 195 | 200 | 205 | |
|---|-----|-----|-----|------|
| aaa gct aag tgg gag aca agc ttc aac cac aaa ggc acc caa gag caa | | | | 673 |
| Lys Ala Lys Trp Glu Thr Ser Phe Asn His Lys Gly Thr Gln Glu Gln | 210 | 215 | 220 | |
| gac ttc tac gtg acc tcg gag act gtg gtg cgg gta ccc atg atg agc | | | | 721 |
| Asp Phe Tyr Val Thr Ser Glu Thr Val Val Arg Val Pro Met Met Ser | 225 | 230 | 235 | |
| cgc gag gat cag tat cac tac ctc ctg gac cgg aac ctc tcc tgc agg | | | | 769 |
| Arg Glu Asp Gln Tyr His Tyr Leu Leu Asp Arg Asn Leu Ser Cys Arg | 240 | 245 | 250 | |
| gtg gtg ggg gtc ccc tac caa ggc aat gcc acg gct ttg ttc att ctc | | | | 817 |
| Val Val Gly Val Pro Tyr Gln Gly Asn Ala Thr Ala Leu Phe Ile Leu | 255 | 260 | 265 | |
| ccc agt gag gga aag atg cag cag gtg gag aat gga ctg agt gag aaa | | | | 865 |
| Pro Ser Glu Gly Lys Met Gln Gln Val Glu Asn Gly Leu Ser Glu Lys | 270 | 275 | 280 | 285 |
| acg ctg agg aag tgg ctt aag atg ttc aaa aag agg cag ctc gag ctt | | | | 913 |
| Thr Leu Arg Lys Trp Leu Lys Met Phe Lys Lys Arg Gln Leu Glu Leu | 290 | 295 | 300 | |
| tac ctt ccc aaa ttc tcc att gag ggc tcc tat cag ctg gag aaa gtc | | | | 961 |
| Tyr Leu Pro Lys Phe Ser Ile Glu Gly Ser Tyr Gln Leu Glu Lys Val | 305 | 310 | 315 | |
| ctc ccc agt ctg ggg atc agt aac gtc ttc acc tcc cat gct gat ctg | | | | 1009 |
| Leu Pro Ser Leu Gly Ile Ser Asn Val Phe Thr Ser His Ala Asp Leu | 320 | 325 | 330 | |
| tcc ggc atc agc aac cac tca aat atc cag gtg tct gag atg gtg cac | | | | 1057 |
| Ser Gly Ile Ser Asn His Ser Asn Ile Gln Val Ser Glu Met Val His | 335 | 340 | 345 | |
| aaa gct gtg gtg gag gtg gac gag tgc gga acc aga gca gcg gca gcc | | | | 1105 |
| Lys Ala Val Val Glu Val Asp Glu Ser Gly Thr Arg Ala Ala Ala Ala | 350 | 355 | 360 | 365 |
| acg ggg aca ata ttc act ttc agg tgc gcc cgc ctg aac tct cag agg | | | | 1153 |
| Thr Gly Thr Ile Phe Thr Phe Arg Ser Ala Arg Leu Asn Ser Gln Arg | 370 | 375 | 380 | |
| cta gtg ttc aac agg ccc ttt ctg atg ttc att gtg gat aac aac atc | | | | 1201 |
| Leu Val Phe Asn Arg Pro Phe Leu Met Phe Ile Val Asp Asn Asn Ile | 385 | 390 | 395 | |
| ctc ttc ctt ggc aaa gtg aac cgc ccc tgaggatcc | | | | 1237 |
| Leu Phe Leu Gly Lys Val Asn Arg Pro | 400 | 405 | | |

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<212> PRT
 <213> Artificial

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 <223> Human PCI

<220>
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 <222> (1)..(19)

<400> 5

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| Met | Gln | Leu | Phe | Leu | Leu | Leu | Cys | Leu | Val | Leu | Leu | Ser | Pro | Gln | Gly | 1 | 5 | 10 | 15 |
| Ala | Ser | Leu | His | Arg | His | His | Pro | Arg | Glu | Met | Lys | Lys | Arg | Val | Glu | 20 | 25 | 30 | |
| Asp | Leu | His | Val | Gly | Ala | Thr | Val | Ala | Pro | Ser | Ser | Arg | Arg | Asp | Phe | 35 | 40 | 45 | |
| Thr | Phe | Asp | Leu | Tyr | Arg | Val | Leu | Ala | Ser | Ala | Ala | Pro | Ser | Gln | Asn | 50 | 55 | 60 | |
| Ile | Phe | Phe | Ser | Pro | Val | Ser | Ile | Ser | Met | Ser | Leu | Ala | Met | Leu | Ser | 65 | 70 | 75 | 80 |
| Leu | Gly | Ala | Gly | Ser | Ser | Thr | Lys | Met | Gln | Ile | Leu | Glu | Gly | Leu | Gly | 85 | 90 | 95 | |
| Leu | Asn | Leu | Gln | Lys | Ser | Ser | Glu | Glu | Glu | Leu | His | Arg | Gly | Phe | Gln | 100 | 105 | 110 | |
| Gln | Leu | Leu | Gln | Glu | Leu | Asn | Gln | Pro | Arg | Asp | Gly | Phe | Gln | Leu | Ser | 115 | 120 | 125 | |
| Leu | Gly | Asn | Ala | Leu | Phe | Thr | Asp | Leu | Val | Val | Asp | Leu | Gln | Asp | Thr | 130 | 135 | 140 | |
| Phe | Val | Ser | Ala | Met | Lys | Thr | Leu | Tyr | Leu | Ala | Asp | Thr | Phe | Pro | Thr | 145 | 150 | 155 | 160 |
| Asn | Phe | Arg | Asp | Ser | Ala | Gly | Ala | Met | Lys | Gln | Ile | Asn | Asp | Tyr | Val | 165 | 170 | 175 | |
| Ala | Lys | Gln | Thr | Lys | Gly | Lys | Ile | Val | Asp | Leu | Leu | Lys | Asn | Leu | Asp | 180 | 185 | 190 | |
| Ser | Asn | Ala | Val | Val | Ile | Met | Val | Asn | Tyr | Ile | Phe | Phe | Lys | Ala | Lys | 195 | 200 | 205 | |
| Trp | Glu | Thr | Ser | Phe | Asn | His | Lys | Gly | Thr | Gln | Glu | Gln | Asp | Phe | Tyr | 210 | 215 | 220 | |
| Val | Thr | Ser | Glu | Thr | Val | Val | Arg | Val | Pro | Met | Met | Ser | Arg | Glu | Asp | 225 | 230 | 235 | 240 |
| Gln | Tyr | His | Tyr | Leu | Leu | Asp | Arg | Asn | Leu | Ser | Cys | Arg | Val | Val | Gly | | | | |

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<220>
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<220>
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<222> (11)..(1258)
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              1              5              10

cct cag ggg gcc tcc ctt cac cgc cac cac ccc cgg gag atg aag aag      97
Pro Gln Gly Ala Ser Leu His Arg His His Pro Arg Glu Met Lys Lys
          15              20              25

aga gtc gag gac ctc cat gta ggt gcc acg gtg gcc ccc agc agc aga     145
Arg Val Glu Asp Leu His Val Gly Ala Thr Val Ala Pro Ser Ser Arg
          30              35              40              45

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| | |
|---|-----|
| agg gac ttt acc ttc gac ctc tac agg gtc ttg gct tcc gct gcc ccc | 193 |
| Arg Asp Phe Thr Phe Asp Leu Tyr Arg Val Leu Ala Ser Ala Ala Pro | |
| 50 55 60 | |
| agc cag aat atc ttc ttc tcc cct gtg agc atc tcc atg agc ctg gcc | 241 |
| Ser Gln Asn Ile Phe Phe Ser Pro Val Ser Ile Ser Met Ser Leu Ala | |
| 65 70 75 | |
| atg ctc tcc ctg ggg gct ggg tcc agc aca aag atg cag atc ctg gag | 289 |
| Met Leu Ser Leu Gly Ala Gly Ser Ser Thr Lys Met Gln Ile Leu Glu | |
| 80 85 90 | |
| ggc ctg ggc ctc aac ctc cag aaa agc tca gag gag gag ctg cac aga | 337 |
| Gly Leu Gly Leu Asn Leu Gln Lys Ser Ser Glu Glu Glu Leu His Arg | |
| 95 100 105 | |
| ggc ttt cag cag ctc ctt cag gaa ctc aac cag ccc aga gat ggc ttc | 385 |
| Gly Phe Gln Gln Leu Leu Gln Glu Leu Asn Gln Pro Arg Asp Gly Phe | |
| 110 115 120 125 | |
| cag ctg agc ctc ggc aat gcc ctt ttc acc gac ctg gtg gta gac ctg | 433 |
| Gln Leu Ser Leu Gly Asn Ala Leu Phe Thr Asp Leu Val Val Asp Leu | |
| 130 135 140 | |
| cag gac acc ttc gta agt gcc atg aag acg ctg tac ctg gca gac act | 481 |
| Gln Asp Thr Phe Val Ser Ala Met Lys Thr Leu Tyr Leu Ala Asp Thr | |
| 145 150 155 | |
| ttc ccc acc aac ttt agg gac tct gca ggg gcc atg aag cag atc aat | 529 |
| Phe Pro Thr Asn Phe Arg Asp Ser Ala Gly Ala Met Lys Gln Ile Asn | |
| 160 165 170 | |
| gat tat gtg gca aag caa acg aag ggc aag att gtg gac ttg ctt aag | 577 |
| Asp Tyr Val Ala Lys Gln Thr Lys Gly Lys Ile Val Asp Leu Leu Lys | |
| 175 180 185 | |
| aac ctc gat agc aat gcg gtc gtg atc atg gtg aat tac atc ttc ttt | 625 |
| Asn Leu Asp Ser Asn Ala Val Val Ile Met Val Asn Tyr Ile Phe Phe | |
| 190 195 200 205 | |
| aaa gct aag tgg gag aca agc ttc aac cac aaa ggc acc caa gag caa | 673 |
| Lys Ala Lys Trp Glu Thr Ser Phe Asn His Lys Gly Thr Gln Glu Gln | |
| 210 215 220 | |
| gac ttc tac gtg acc tcg gag act gtg gtg cgg gta ccc atg atg agc | 721 |
| Asp Phe Tyr Val Thr Ser Glu Thr Val Val Arg Val Pro Met Met Ser | |
| 225 230 235 | |
| cgc gag gat cag tat cac tac ctc ctg gac cgg aac ctc tcc tgc agg | 769 |
| Arg Glu Asp Gln Tyr His Tyr Leu Leu Asp Arg Asn Leu Ser Cys Arg | |
| 240 245 250 | |
| gtg gtg ggg gtc ccc tac caa ggc aat gcc acg gct ttg ttc att ctc | 817 |
| Val Val Gly Val Pro Tyr Gln Gly Asn Ala Thr Ala Leu Phe Ile Leu | |
| 255 260 265 | |

ccc agt gag gga aag atg cag cag gtg gag aat gga ctg agt gag aaa 865
 Pro Ser Glu Gly Lys Met Gln Gln Val Glu Asn Gly Leu Ser Glu Lys
 270 275 280 285

acg ctg agg aag tgg ctt aag atg ttc aaa aag agg cag ctc gag ctt 913
 Thr Leu Arg Lys Trp Leu Lys Met Phe Lys Lys Arg Gln Leu Glu Leu
 290 295 300

tac ctt ccc aaa ttc tcc att gag ggc tcc tat cag ctg gag aaa gtc 961
 Tyr Leu Pro Lys Phe Ser Ile Glu Gly Ser Tyr Gln Leu Glu Lys Val
 305 310 315

ctc ccc agt ctg ggg atc agt aac gtc ttc acc tcc cat gct gat ctg 1009
 Leu Pro Ser Leu Gly Ile Ser Asn Val Phe Thr Ser His Ala Asp Leu
 320 325 330

tcc ggc atc agc aac cac tca aat atc cag gtg tct gag atg gtg cac 1057
 Ser Gly Ile Ser Asn His Ser Asn Ile Gln Val Ser Glu Met Val His
 335 340 345

aaa gct gtg gtg gag gtg gac gag tcg gga acc aga gca gcg gca gcc 1105
 Lys Ala Val Val Glu Val Asp Glu Ser Gly Thr Arg Ala Ala Ala Ala
 350 355 360 365

acg ggg aca ata ttc act ttc agg tcg gcc cgc ctg aac tct cag agg 1153
 Thr Gly Thr Ile Phe Thr Phe Arg Ser Ala Arg Leu Asn Ser Gln Arg
 370 375 380

cta gtg ttc aac agg ccc ttt ctg atg ttc att gtg gat aac aac atc 1201
 Leu Val Phe Asn Arg Pro Phe Leu Met Phe Ile Val Asp Asn Asn Ile
 385 390 395

ctc ttc ctt ggc aaa gtg aac cgc ccc gga tcc gac tac aag gac gac 1249
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gat gac aag tga 1261
 Asp Asp Lys
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 <222> (1)..(19)

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| Ala | Ser | Leu | His | Arg | His | His | Pro | Arg | Glu | Met | Lys | Lys | Arg | Val | Glu | 20 | 25 | 30 | |
| Asp | Leu | His | Val | Gly | Ala | Thr | Val | Ala | Pro | Ser | Ser | Arg | Arg | Asp | Phe | 35 | 40 | 45 | |
| Thr | Phe | Asp | Leu | Tyr | Arg | Val | Leu | Ala | Ser | Ala | Ala | Pro | Ser | Gln | Asn | 50 | 55 | 60 | |
| Ile | Phe | Phe | Ser | Pro | Val | Ser | Ile | Ser | Met | Ser | Leu | Ala | Met | Leu | Ser | 65 | 70 | 75 | 80 |
| Leu | Gly | Ala | Gly | Ser | Ser | Thr | Lys | Met | Gln | Ile | Leu | Glu | Gly | Leu | Gly | 85 | 90 | 95 | |
| Leu | Asn | Leu | Gln | Lys | Ser | Ser | Glu | Glu | Glu | Leu | His | Arg | Gly | Phe | Gln | 100 | 105 | 110 | |
| Gln | Leu | Leu | Gln | Glu | Leu | Asn | Gln | Pro | Arg | Asp | Gly | Phe | Gln | Leu | Ser | 115 | 120 | 125 | |
| Leu | Gly | Asn | Ala | Leu | Phe | Thr | Asp | Leu | Val | Val | Asp | Leu | Gln | Asp | Thr | 130 | 135 | 140 | |
| Phe | Val | Ser | Ala | Met | Lys | Thr | Leu | Tyr | Leu | Ala | Asp | Thr | Phe | Pro | Thr | 145 | 150 | 155 | 160 |
| Asn | Phe | Arg | Asp | Ser | Ala | Gly | Ala | Met | Lys | Gln | Ile | Asn | Asp | Tyr | Val | 165 | 170 | 175 | |
| Ala | Lys | Gln | Thr | Lys | Gly | Lys | Ile | Val | Asp | Leu | Leu | Lys | Asn | Leu | Asp | 180 | 185 | 190 | |
| Ser | Asn | Ala | Val | Val | Ile | Met | Val | Asn | Tyr | Ile | Phe | Phe | Lys | Ala | Lys | 195 | 200 | 205 | |
| Trp | Glu | Thr | Ser | Phe | Asn | His | Lys | Gly | Thr | Gln | Glu | Gln | Asp | Phe | Tyr | 210 | 215 | 220 | |
| Val | Thr | Ser | Glu | Thr | Val | Val | Arg | Val | Pro | Met | Met | Ser | Arg | Glu | Asp | 225 | 230 | 235 | 240 |
| Gln | Tyr | His | Tyr | Leu | Leu | Asp | Arg | Asn | Leu | Ser | Cys | Arg | Val | Val | Gly | 245 | 250 | 255 | |
| Val | Pro | Tyr | Gln | Gly | Asn | Ala | Thr | Ala | Leu | Phe | Ile | Leu | Pro | Ser | Glu | 260 | 265 | 270 | |
| Gly | Lys | Met | Gln | Gln | Val | Glu | Asn | Gly | Leu | Ser | Glu | Lys | Thr | Leu | Arg | 275 | 280 | 285 | |
| Lys | Trp | Leu | Lys | Met | Phe | Lys | Lys | Arg | Gln | Leu | Glu | Leu | Tyr | Leu | Pro | 290 | 295 | 300 | |
| Lys | Phe | Ser | Ile | Glu | Gly | Ser | Tyr | Gln | Leu | Glu | Lys | Val | Leu | Pro | Ser | 305 | 310 | 315 | 320 |

Leu Gly Ile Ser Asn Val Phe Thr Ser His Ala Asp Leu Ser Gly Ile
 325 330 335

Ser Asn His Ser Asn Ile Gln Val Ser Glu Met Val His Lys Ala Val
 340 345 350

Val Glu Val Asp Glu Ser Gly Thr Arg Ala Ala Ala Thr Gly Thr
 355 360 365

Ile Phe Thr Phe Arg Ser Ala Arg Leu Asn Ser Gln Arg Leu Val Phe
 370 375 380

Asn Arg Pro Phe Leu Met Phe Ile Val Asp Asn Asn Ile Leu Phe Leu
 385 390 395 400

Gly Lys Val Asn Arg Pro Gly Ser Asp Tyr Lys Asp Asp Asp Asp Lys
 405 410 415

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 <212> PRT
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Ser Val Lys Leu Ser Cys Thr Ala Ser Gly Phe Asp Ile Lys Asp Thr
 20 25 30

Phe Met His Trp Val Lys Gln Arg Pro Glu Gln Gly Leu Glu Trp Ile
 35 40 45

Gly Arg Ile Asp Tyr Val Asn Gly Asn Thr Lys Tyr Asp Pro Lys Phe
 50 55 60

Gln Gly Lys Ala Thr Ile Thr Gly Asp Thr Ser Ser Asn Thr Ala Tyr
 65 70 75 80

Leu Gln Leu Ser Ser Leu Thr Ser Glu Asp Thr Ala Val Tyr Tyr Cys
 85 90 95

Ala Arg Gly Gly Tyr Asp Val Arg Glu Phe Ala Tyr Trp Gly Gln Gly
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Thr Leu Val Thr Val Ser Ala
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| | | | |
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| Ser Val Lys Leu Ser Cys Thr Ala Ser Gly Phe Asp Ile Lys Asp Thr | 20 | 25 | 30 |
| Phe Met His Trp Val Lys Gln Arg Pro Glu Gln Gly Leu Glu Trp Ile | 35 | 40 | 45 |
| Gly Arg Ile Asp Tyr Val Asn Gly Asn Thr Lys Tyr Asp Pro Lys Phe | 50 | 55 | 60 |
| Gln Gly Lys Ala Thr Ile Thr Gly Asp Thr Ser Ser Asn Thr Ala Tyr | 65 | 70 | 75 |
| Leu Gln Leu Ser Ser Leu Thr Ser Glu Asp Thr Ala Val Tyr Tyr Cys | 85 | 90 | 95 |
| Ala Arg Gly Gly Tyr Asp Val Arg Glu Phe Ala Tyr Trp Gly Gln Gly | 100 | 105 | 110 |
| Thr Leu Val Thr Val Ser Ala | 115 | | |

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| 20 25 30 |
| Phe Met His Trp Val Lys Gln Arg Pro Glu Gln Gly Leu Glu Trp Ile |
| 35 40 45 |
| Gly Arg Ile Asp Leu Val Asn Val Asn Thr Lys Tyr Asp Pro Asn Phe |
| 50 55 60 |
| Gln Asp Arg Ala Thr Ile Thr Ala Asp Thr Ser Ser Asn Thr Ala Tyr |
| 65 70 75 80 |
| Leu Gln Leu Thr Ser Leu Thr Ser Glu Asp Thr Ala Val Tyr Tyr Cys |
| 85 90 95 |
| Ala Arg Gly Gly Tyr Asp Val Arg Glu Phe Ala Tyr Trp Gly Gln Gly |
| 100 105 110 |
| Thr Leu Val Thr Val Ser Ala |
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<400> 11

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 Tyr Ile His Trp Val Lys Gln Arg Pro Glu Gln Gly Leu Glu Trp Ile
 35 40 45
 Gly Arg Ile Asp Leu Glu Lys Gly Asn Ile Ile Tyr Asp Pro Lys Phe
 50 55 60
 Gln Gly Lys Asp Asn Ile Thr Ala Asp Thr Ser Ser Asn Thr Ala Tyr
 65 70 75 80
 Leu Gln Leu Ser Ser Leu Thr Ser Glu Asp Thr Ala Val Tyr Tyr Cys
 85 90 95
 Ala Arg Gly Gly Tyr Asp Val Pro Ser Phe Ala Tyr Trp Gly Gln Gly
 100 105 110
 Thr Leu Val Thr Val Ser Ala
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 35 40 45
 Gly Glu Ile Asn Pro Asp Ser Ser Thr Ile Asn Tyr Thr Pro Ser Leu
 50 55 60
 Lys Asp Lys Phe Ile Ile Ser Arg Asp Asn Ala Lys Lys Thr Leu Tyr
 65 70 75 80
 Leu Gln Met Asn Lys Val Arg Ser Glu Asp Thr Ala Leu Tyr Tyr Cys
 85 90 95
 Ala Arg Phe Phe Tyr Tyr Gly Thr Pro Asp Tyr Trp Gly Gln Gly Thr
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 Thr Leu Thr Val Ser Ser Ala

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 35 40 45
 Gly Glu Ile Asn Pro Asp Ser Ser Thr Ile Thr Tyr Thr Ser Ser Leu
 50 55 60
 Lys Asp Arg Phe Ile Ile Ser Arg Asp Asn Ala Lys Asn Thr Val Tyr
 65 70 75 80
 Leu Gln Met Ser Lys Val Arg Ser Glu Asp Thr Ala Leu Tyr Tyr Cys
 85 90 95
 Ala Arg Leu Phe Tyr Tyr Gly Thr Pro Asp Tyr Trp Gly Gln Gly Thr
 100 105 110
 Thr Leu Thr Val Ser Ser Ala
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<400> 14

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 Pro Ile Glu Trp Met Lys Gln Asn His Gly Lys Ser Leu Glu Trp Ile
 35 40 45
 Gly Lys Phe His Pro Asp Asn Asp Asp Thr Asn Tyr Asn Glu Lys Phe
 50 55 60
 Lys Gly Lys Ala Lys Leu Thr Val Glu Lys Ser Ser Ser Thr Val Tyr
 65 70 75 80
 Leu Glu Leu Ser Arg Leu Thr Ser Asp Asp Ser Ala Val Tyr Tyr Cys
 85 90 95

Ala Arg Gly His Asp Tyr Asp Tyr Gly Met Asp Tyr Trp Gly Gln Gly
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Thr Ser Val Thr Val Ser Ser Ala
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Glu Lys Val Thr Ile Thr Cys Ser Ala Thr Ser Ser Leu Ile Tyr Met
 20 25 30

His Trp Phe Gln Gln Lys Pro Gly Ser Ser Pro Glu Leu Trp Ile Tyr
 35 40 45

Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Ala Arg Phe Ser Gly Ser
 50 55 60

Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Ser Arg Met Glu Ala Glu
 65 70 75 80

Asp Ala Ala Thr Tyr Tyr Cys Gln Gln Arg Ser Ser Tyr Pro Phe Thr
 85 90 95

Phe Gly Ser Gly Thr Lys Leu Glu Ile Lys
 100 105

<210> 16
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Glu Lys Val Thr Ile Thr Cys Ser Ala Thr Ser Ser Leu Ile Tyr Met
 20 25 30

His Trp Phe Gln Gln Lys Pro Gly Ser Ser Pro Glu Leu Trp Ile Tyr
 35 40 45

Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Ala Arg Phe Ser Gly Ser
 50 55 60

Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Ser Arg Met Glu Ala Glu
 65 70 75 80

Asp Ala Ala Thr Tyr Tyr Cys Gln Gln Arg Ser Ser Tyr Pro Phe Thr
 85 90 95

Phe Gly Ser Gly Thr Lys Leu Glu Ile Lys
 100 105

<210> 17
 <211> 106
 <212> PRT
 <213> Mus musculus

<400> 17
 Gln Ile Val Leu Thr Gln Ser Pro Ala Ile Met Ser Ala Ser Pro Gly
 1 5 10 15

Glu Lys Val Thr Ile Thr Cys Ser Ala Thr Ser Ser Leu Ile Tyr Met
 20 25 30

His Trp Phe Gln Gln Lys Pro Gly Thr Ser Pro Lys Leu Trp Ile Tyr
 35 40 45

Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Ala Arg Phe Ser Gly Ser
 50 55 60

Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Ser Arg Met Glu Ala Glu
 65 70 75 80

Asp Ala Ala Thr Tyr Tyr Cys Gln Gln Arg Ser Ser Tyr Pro Phe Thr
 85 90 95

Phe Gly Ser Gly Thr Lys Leu Glu Ile Lys
 100 105

<210> 18
 <211> 106
 <212> PRT
 <213> Mus musculus

<400> 18
 Gln Ile Val Leu Thr Gln Ser Pro Ala Ile Met Ser Ala Ser Pro Gly
 1 5 10 15

Glu Lys Val Thr Ile Thr Cys Ser Ala Ser Ser Ser Val Ser Tyr Met
 20 25 30

His Trp Phe Gln Gln Lys Pro Gly Thr Ser Pro Lys Leu Trp Ile Tyr
 35 40 45

Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Ala Arg Phe Ser Gly Ser
 50 55 60

Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Ser Arg Met Glu Ala Glu
 65 70 75 80

Asp Ala Ala Thr Tyr Tyr Cys Gln Gln Arg Ser Ser Tyr Pro Phe Thr

| | | | | | |
|---|-----|--|-----|--|----|
| | 85 | | 90 | | 95 |
| Phe Gly Ser Gly Thr Lys Leu Glu Ile Lys | | | | | |
| | 100 | | 105 | | |

<210> 19
 <211> 108
 <212> PRT
 <213> Mus musculus

<400> 19
 Asp Ile Val Met Thr Gln Ser His Lys Phe Met Ser Ala Ser Val Gly
 1 5 10 15
 Asp Arg Val Ser Ile Thr Cys Lys Ala Ser Gln Asp Val Ile Val Ala
 20 25 30
 Val Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ser Pro Glu Leu Leu Ile
 35 40 45
 Tyr Ser Ala Ser Tyr Arg Tyr Thr Gly Val Pro Asp Arg Phe Thr Gly
 50 55 60
 Ser Gly Ser Gly Thr Asp Phe Thr Phe Thr Ile Ser Ser Val Gln Ala
 65 70 75 80
 Glu Asp Leu Ala Val Tyr Tyr Cys Gln Gln His Tyr Ser Ser Pro Pro
 85 90 95
 Trp Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys
 100 105

<210> 20
 <211> 108
 <212> PRT
 <213> Mus musculus

<400> 20
 Asp Ile Val Met Thr Gln Ser His Lys Phe Met Ser Thr Ser Val Gly
 1 5 10 15
 Asp Arg Val Ser Ile Thr Cys Lys Ala Ser Gln Asp Val Ile Lys Ala
 20 25 30
 Val Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ser Pro Lys Leu Leu Ile
 35 40 45
 Tyr Ser Thr Ser Tyr Arg Tyr Thr Gly Val Pro Asp Arg Phe Ser Gly
 50 55 60
 Ser Gly Ser Gly Thr Asp Phe Thr Phe Thr Ile Ser Ser Val Gln Ala
 65 70 75 80
 Glu Asp Leu Ala Val Tyr Tyr Cys Gln Gln His Tyr Ser Ser Pro Pro
 85 90 95

Trp Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys
 100 105

<210> 21
 <211> 111
 <212> PRT
 <213> Mus musculus

<400> 21
 Asp Ile Val Leu Thr Gln Ser Pro Ala Ser Leu Ala Val Ser Leu Gly
 1 5 10 15
 Gln Arg Ala Thr Ile Ser Cys Lys Ala Ser Gln Ser Val Asp Tyr Asp
 20 25 30
 Gly Asp Ser Tyr Leu Asn Trp Tyr Gln Gln Lys Pro Gly Gln Pro Pro
 35 40 45
 Lys Leu Leu Ile Tyr Gly Ala Ser Asn Leu Glu Ser Gly Thr Pro Ala
 50 55 60
 Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Asp Ile His
 65 70 75 80
 Pro Val Glu Glu Glu Asp Ala Ala Thr Tyr Tyr Cys Gln Gln Ser Asn
 85 90 95
 Glu Asp Pro Pro Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Thr
 100 105 110

<210> 22
 <211> 5
 <212> PRT
 <213> Mus musculus

<400> 22
 Asp Thr Phe Met His
 1 5

<210> 23
 <211> 5
 <212> PRT
 <213> Mus musculus

<400> 23
 Asp Tyr Tyr Ile His
 1 5

<210> 24
 <211> 5
 <212> PRT
 <213> Mus musculus

<400> 24
 Arg Tyr Trp Met Ser
 1 5

<210> 25
 <211> 5
 <212> PRT
 <213> Mus musculus

<400> 25
 Thr Tyr Pro Ile Glu
 1 5

<210> 26
 <211> 17
 <212> PRT
 <213> Mus musculus

<400> 26
 Arg Ile Asp Tyr Val Asn Gly Asn Thr Lys Tyr Asp Pro Lys Phe Gln
 1 5 10 15

Gly

<210> 27
 <211> 17
 <212> PRT
 <213> Mus musculus

<400> 27
 Arg Ile Asp Leu Val Asn Val Asn Thr Lys Tyr Asp Pro Asn Phe Gln
 1 5 10 15

Asp

<210> 28
 <211> 17
 <212> PRT
 <213> Mus musculus

<400> 28
 Arg Ile Asp Leu Glu Lys Gly Asn Ile Ile Tyr Asp Pro Lys Phe Gln
 1 5 10 15

Gly

<210> 29
 <211> 17

<212> PRT
 <213> Mus musculus

<400> 29
 Glu Ile Asn Pro Asp Ser Ser Thr Ile Asn Tyr Thr Pro Ser Leu Lys
 1 5 10 15

Asp

<210> 30
 <211> 17
 <212> PRT
 <213> Mus musculus

<400> 30
 Glu Ile Asn Pro Asp Ser Ser Thr Ile Thr Tyr Thr Ser Ser Leu Lys
 1 5 10 15

Asp

<210> 31
 <211> 17
 <212> PRT
 <213> Mus musculus

<400> 31
 Lys Phe His Pro Asp Asn Asp Asp Thr Asn Tyr Asn Glu Lys Phe Lys
 1 5 10 15

Gly

<210> 32
 <211> 10
 <212> PRT
 <213> Mus musculus

<400> 32
 Gly Gly Tyr Asp Val Arg Glu Phe Ala Tyr
 1 5 10

<210> 33
 <211> 10
 <212> PRT
 <213> Mus musculus

<400> 33
 Gly Gly Tyr Asp Val Pro Ser Phe Ala Tyr
 1 5 10

<210> 34
 <211> 9
 <212> PRT
 <213> Mus musculus

<400> 34
 Phe Phe Tyr Tyr Gly Thr Pro Asp Tyr
 1 5

<210> 35
 <211> 9
 <212> PRT
 <213> Mus musculus

<400> 35
 Leu Phe Tyr Tyr Gly Thr Pro Asp Tyr
 1 5

<210> 36
 <211> 10
 <212> PRT
 <213> Mus musculus

<400> 36
 Gly His Asp Tyr Asp Tyr Gly Met Asp Tyr
 1 5 10

<210> 37
 <211> 10
 <212> PRT
 <213> Mus musculus

<400> 37
 Ser Ala Thr Ser Ser Leu Ile Tyr Met His
 1 5 10

<210> 38
 <211> 10
 <212> PRT
 <213> Mus musculus

<400> 38
 Ser Ala Ser Ser Ser Val Ser Tyr Met His
 1 5 10

<210> 39
 <211> 11
 <212> PRT
 <213> Mus musculus

<400> 39
 Lys Ala Ser Gln Asp Val Ile Val Ala Val Ala

1

5

10

<210> 40
 <211> 11
 <212> PRT
 <213> Mus musculus

<400> 40
 Lys Ala Ser Gln Asp Val Ile Lys Ala Val Ala
 1 5 10

<210> 41
 <211> 15
 <212> PRT
 <213> Mus musculus

<400> 41
 Lys Ala Ser Gln Ser Val Asp Tyr Asp Gly Asp Ser Tyr Leu Asn
 1 5 10 15

<210> 42
 <211> 11
 <212> PRT
 <213> Mus musculus

<400> 42
 Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Ala
 1 5 10

<210> 43
 <211> 11
 <212> PRT
 <213> Mus musculus

<400> 43
 Ser Ala Ser Tyr Arg Tyr Thr Gly Val Pro Asp
 1 5 10

<210> 44
 <211> 11
 <212> PRT
 <213> Mus musculus

<400> 44
 Ser Thr Ser Tyr Arg Tyr Thr Gly Val Pro Asp
 1 5 10

<210> 45
 <211> 11
 <212> PRT
 <213> Mus musculus

<400> 45
 Gly Ala Ser Asn Leu Glu Ser Gly Thr Pro Ala
 1 5 10

<210> 46
 <211> 7
 <212> PRT
 <213> Mus musculus

<400> 46
 Arg Ser Ser Tyr Pro Phe Thr
 1 5

<210> 47
 <211> 8
 <212> PRT
 <213> Mus musculus

<400> 47
 His Tyr Ser Ser Pro Pro Trp Thr
 1 5

<210> 48
 <211> 7
 <212> PRT
 <213> Mus musculus

<400> 48
 Ser Asn Glu Asp Pro Pro Thr
 1 5

<210> 49
 <211> 5
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Heavy chain CDR1

<220>
 <221> misc_feature
 <222> (2)..(2)
 <223> "Xaa" in position 2 represents "Thr" or "Tyr"

<220>
 <221> misc_feature
 <222> (3)..(3)
 <223> "Xaa" in position 3 represents "Phe" or "Tyr"

<220>
 <221> misc_feature
 <222> (4)..(4)

<223> "Xaa" in position 4 represents "Met" or "Ile"

<400> 49

Asp Xaa Xaa Xaa His
1 5

<210> 50

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> Heavy chain CDR2

<220>

<221> misc_feature

<222> (4)..(4)

<223> "Xaa" in position 4 represents "Tyr" or "Leu"

<220>

<221> misc_feature

<222> (5)..(5)

<223> "Xaa" in position 5 represents "Val" or "Glu"

<220>

<221> misc_feature

<222> (6)..(6)

<223> "Xaa" in position 6 represents "Asn" or "Lys"

<220>

<221> misc_feature

<222> (7)..(7)

<223> "Xaa" in position 7 represents "Gly" or "Val"

<220>

<221> misc_feature

<222> (9)..(9)

<223> "Xaa" in position 9 represents "Thr" or "Ile"

<220>

<221> misc_feature

<222> (10)..(10)

<223> "Xaa" in position 10 represents "Lys" or "Ile"

<220>

<221> misc_feature

<222> (14)..(14)

<223> "Xaa" in position 14 represents "Lys" or "Asn"

<220>

<221> misc_feature

<222> (17)..(17)

<223> "Xaa" in position 17 represents "Gly" or "Asp"

<400> 50

Arg Ile Asp Xaa Xaa Xaa Xaa Asn Xaa Xaa Tyr Asp Pro Xaa Phe Gln

| | | | |
|---|---|----|----|
| 1 | 5 | 10 | 15 |
|---|---|----|----|

Xaa

<210> 51
 <211> 10
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Heavy chain CDR3

<220>
 <221> misc_feature
 <222> (6)..(6)
 <223> "Xaa" in position 6 represents "Arg" or "Pro"

<220>
 <221> misc_feature
 <222> (7)..(7)
 <223> "Xaa" in position 7 represents "Glu" or "Ser"

<400> 51
 Gly Gly Tyr Asp Val Xaa Xaa Phe Ala Tyr
 1 5 10

<210> 52
 <211> 5
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Heavy chain CDR1

<400> 52
 Arg Tyr Trp Met Ser
 1 5

<210> 53
 <211> 17
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Heavy chain CDR2

<220>
 <221> misc_feature
 <222> (10)..(10)
 <223> "Xaa" in position 10 represents "Asn" or "Thr"

<220>
 <221> misc_feature

<222> (13)..(13)
 <223> "Xaa" in position 13 represents "Pro" or "Ser"

<400> 53
 Glu Ile Asn Pro Asp Ser Ser Thr Ile Xaa Tyr Thr Xaa Ser Leu Lys
 1 5 10 15

Asp

<210> 54
 <211> 9
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Heavy chain CDR3

<220>
 <221> misc_feature
 <222> (1)..(1)
 <223> "Xaa" in position 1 represents "Phe" or "Leu"

<400> 54
 Xaa Phe Tyr Tyr Gly Thr Pro Asp Tyr
 1 5

<210> 55
 <211> 10
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Light chain CDR1

<220>
 <221> misc_feature
 <222> (3)..(3)
 <223> "Xaa" in position 3 represents "Thr" or "Ser"

<220>
 <221> misc_feature
 <222> (6)..(6)
 <223> "Xaa" in position 6 represents "Leu" or "Val"

<220>
 <221> misc_feature
 <222> (7)..(7)
 <223> "Xaa" in position 7 represents "Ile" or "Ser"

<400> 55
 Ser Ala Xaa Ser Ser Xaa Xaa Tyr Met His
 1 5 10

<210> 56
 <211> 11
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Light chain CDR2

<400> 56
 Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Ala
 1 5 10

<210> 57
 <211> 7
 <212> PRT
 <213> Artificial

<220>
 <223> Light chain CDR3

<400> 57
 Arg Ser Ser Tyr Pro Phe Thr
 1 5

<210> 58
 <211> 11
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Light chain CDR1

<220>
 <221> misc_feature
 <222> (8)..(8)
 <223> "Xaa" in position 8 represents "Val" or "Lys"

<400> 58
 Lys Ala Ser Gln Asp Val Ile Xaa Ala Val Ala
 1 5 10

<210> 59
 <211> 11
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Light chain CDR2

<220>
 <221> misc_feature
 <222> (2)..(2)
 <223> "Xaa" in position 2 represents "Ala" or "Thr"

<400> 59
Ser Xaa Ser Tyr Arg Tyr Thr Gly Val Pro Asp
1 5 10

<210> 60
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Light chain CDR3

<400> 60
His Tyr Ser Ser Pro Pro Trp Thr
1 5